Exam

Key terms:

Crude Rate = total # of events ÷ population size (not adjusted). Limitation: Does not consider age, sex, or other differences. Adjusted Rate = rate modified for a factor (like age) to allow fair comparison. Specific Rate = rate for subgroup (e.g., age-specific, cause-specific).

Data Presentation:

Tables: rows/columns with cases + totals. Graphs: histogram, line graph, pie chart. Epidemic Curve: shows outbreak start, peak, decline.

Study Desing:

Cohort Study → gives incidence & RR. Case-Control → gives OR. Cross-Sectional → gives prevalence.

Standardization of Rates:

Needed to fairly compare groups (ex: young vs. old populations). Crude rate: overall, unadjusted. Specific rate: subgroup (age-s-pecific, sex-specific). Adjusted rate: mathematically corrected (direct/indirect standardization).

Key Notes:

High prevalence, low incidence → disease lasts long. Low prevalence, high incidence → short disease duration or fast death/cure. Rates help show risk factors, prevention targets, health priorities.

Incidence = Incoming cases Prevalence = Present cases Mortality = Memory of deaths

Descriptive vs Analytic Epidemiology

Descriptive epidemiology = Who, what, when, where.→ describes distribution of health events (person, place, time). → Helps generate hypotheses. Analytic epidemiology = Why, how → studies determinants and risk factors. → Tests hypotheses.

Prevalence-

Focus: existing cases of disease. Tells how common disease is in a population. Two types: Point prevalence (specific time point) Period prevalence (time interval, ex: last year).

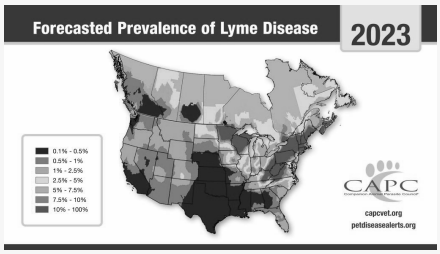
Ecological Fallacy:

Definition: Making wrong conclusion about individuals based on group data. Example: Countries with more doctors per person have lower mortality. But not every individual in that country sees a doctor.

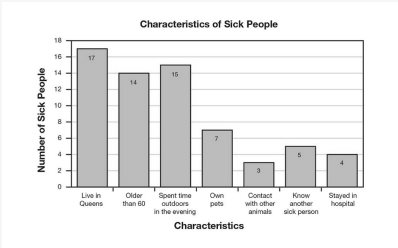
Exam (cont)

(Study), What It Does--Strength--Weakness (Case Repor), One patient unusual disease--Fast, simple--Cannot generalize (Case Series), Many cases same disease--Detect patterns--No comparison group (Cross-Sectional), Snapshot of exposure + disease--Cheap, shows prevalence--Cannot tell cause-effect (Ecologic), Group-level data compare (e.g., country rates)--Easy, large data--Ecologic fallacy (group ≠ individual)

Spot/Area Map:



Histogram



Incidence Rate (IR):

IR=Newcases÷Populationatrisk(overtime)IR=Newcases÷Population-atrisk(overtime) → shows risk of getting disease. Cumulative Incidence: Proportion of people who develop disease during time period. Prevalence (P): P=Existingcases÷TotalpopulationP=Existi-ngcases÷Totalpopulation → shows burden of disease. Mortality Rate (MR): MR=Deaths÷PopulationMR=Deaths÷Population → describes severity of disease. Person-Time: Accounts for different lengths of follow-up. Example: 100 people followed for 1 year = 100 person-years.

chronic conditions and their risk factors

Osteoporosis- Estrogen

Respiratory/asthma- Asbestos

Dermatologic- Arsenic

Obesity tied to several health problems
Heart disease
Depression
Type 2 Diabetes
Stroke
Colon Cancer

What is?	
Host- the living thing that germs use to survive.	example:If a person catches the flu, that person is the host because the flu virus is living and growing inside their body.
Agent- the “troublem-aker” that starts the sickness.	example: The influenza virus, which causes the flu
Environment- everything around us that helps or blocks disease spread.	example: Warm climate + presence of mosquitoes + stagnant water

References	
Rothman, K. J., Greenland, S., & Lash, T. L. (2021). Modern Epidem-iology (4th ed.). Wolters Kluwer.	Merrill, Ray M. Introduction to Epidemiology. 9th ed., Jones & Bartlett Learning, 2022.
Class Chapter 4 Quiz(12 Q)	